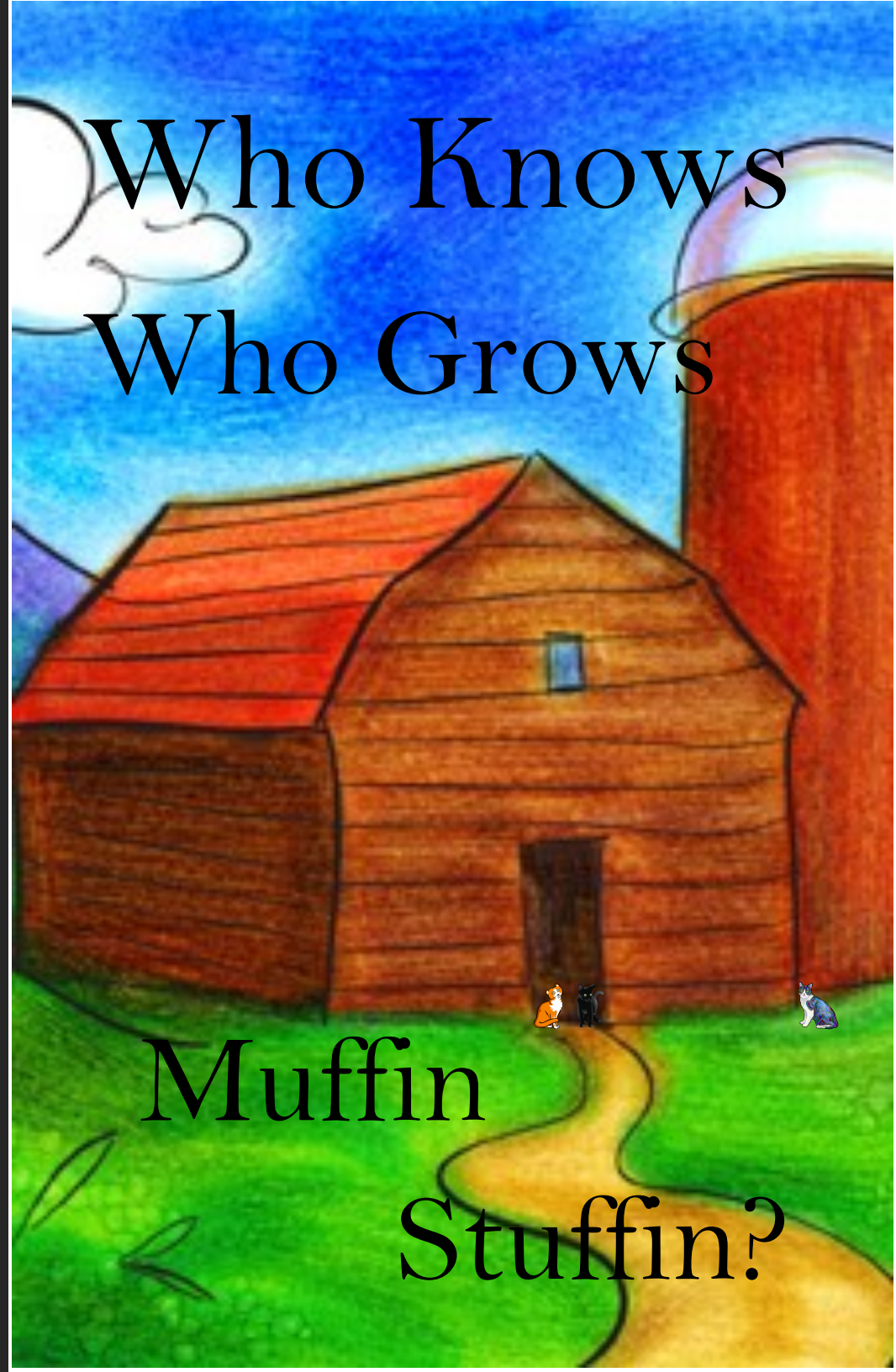


Who Knows
Who Grows

Muffin

Stuffin?





Who Knows Who Grows Muffin Stuffin'?

This hands on learning book Introduces students to agriculture commodities which are grown in Montana and other states. Ideal for reading aloud and then using as a guide for measuring and mixing. The story yields discussions in math, science, and geography, the agriculture commodities yield delicious muffins! See page 16 for materials list!



Grow and Know with Montana Agriculture



agr.mt.gov



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Who Knows Who Grows Muffin Stuffin'?

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FLOUR

Montana farmers grow wheat for muffin stuffin! Wheat flour comes from the seeds of the wheat plant. The seeds are also called wheat berries. Processing wheat requires the wheat berries to be crushed many times, and put through many screens before the particles are fine enough to use for flour. There are many different types of wheat, and many dif-

ferent types of flour. Some flour is best for bread, other for pasta! There are 6 major types of wheat, Montana farmers raise 5 of them.



Muffin Stuffin

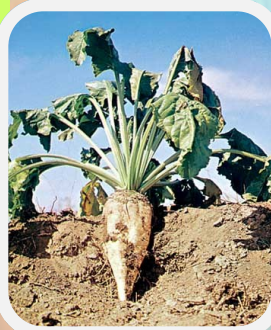
Add
1 $\frac{3}{4}$ cups of whole wheat flour
to your dry ingredients mixing
bowl!



Your flour was made from wheat berries!

SUGAR

Montana farmers grow sugar beets for sugar, and that's muffin stuffin too! Sugar beets are grown from seed, and are much larger and lighter in color than red beets. Farmers haul truck loads of sugar beets from their fields to processing plants in Montana, where the beets are washed and sliced by a machine. The sliced strips are then sent through a machine called a diffuser, which extracts the sugar into a water solution. After several other processing steps take place the solution is evaporated, leaving sugar crystals. Brown sugar is less refined than white sugar. Molasses is the left over syrup after the evaporation process.



Muffin Stuffin

Add
1 cup of brown sugar to your dry
ingredients mixing bowl!



The beet pulp left over after making sugar
is made into animal feed.

OATMEAL

Montana farmers grow oats for oatmeal, great for muffin stuffin! Oats, like wheat, are also a grain. Farmers harvest the oats when they are golden, smell sweet, and are plump. The oats are then hauled to an elevator for storage, or to a processing plant. At the processing plant the oats are cleaned to remove any weed seeds, metal, or straw.



The oats are then steamed, heated, and cooled to bring out the flavor. Next the hull (outer coat) is removed. To make oatmeal the groats are then steamed and run through large rollers to

Muffin Stuffin

Add
 $\frac{1}{2}$ cup of oatmeal to your dry ingredients mixing bowl!



Oats that have had the outer shell removed are called groats.

MILK

Montana dairy cows make muffin stuffin milk, with the help of the farmer of course! The farmer milks the cows twice a day and then sells the milk to a processor. The milk is made into butter, cheese, yogurt, ice cream, and several varieties of milk. In a way you could say that this is a partnership between the farmer and the cow. The cow has a great home, lots of food and clean water, and in exchange their milk is harvested by the dairy farmer. Dairy cows who are producing milk drink up to 50 gallons of water a day!



Muffin Stuffin

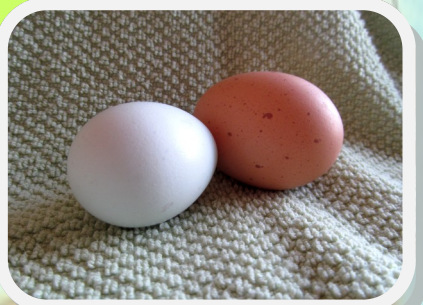
Add
1 cup of milk to the wet
ingredients mixing bowl!



There are many varieties of milk; whole milk, 2% milk, buttermilk, and skim milk.

EGGS

Montana farmers raise chickens and gather their muffin stuffin eggs for market! The gathered eggs are carefully inspected for cleanliness, size, shell strength, and even content. The contents of the egg are viewed under special lighting conditions which show if there is unwanted matter in the egg. There are many different breeds of chickens, and many different colors of chicken eggs. Eggs may be white, brown, speckled, and some are green or blue, even pinkish! Hens don't have to mate to lay eggs, and the average hen will lay 300 eggs a year.



Muffin Stuffin

Add
1 egg to your wet ingredients
bowl!



Check the egg carton to see what farm
your eggs came from.

OIL

Montana farmers grow canola, sunflower, and other oil seed crops for cooking oil, that's a whole lot of muffin stuffin!

Farmers harvest dried canola seeds, which are black, round, and small. Seeds are cleaned when they get to the processing plant to remove stems, metal, and weeds. The seeds are then crushed into a flake. The flakes are squeezed with large rollers to remove the oil. The oil is washed and spun at high speeds, removing impurities. The impurities are sold to soap manufacturers. Canola oil is one of the healthiest cooking oils, compared to olive, sunflower, and soybean oils it has the lowest level of saturated fat, only 7%.



Muffin Stuffin

Add

$\frac{1}{2}$ cup of oil to your wet ingredients bowl!

After mixing well, combine the wet ingredients with the dry ingredients.

Canola flowers are bright yellow, canola is also called rapeseed.

TEAM WORK

The ingredients in your muffin stuffin bowl are all raised on Montana farms! Growing muffin stuffin takes team work, and we need to borrow some tasty muffin stuffin from our neighboring team farmers in other states. Each state or country has special climates that allows growing of different agriculture crops. Lets look south and west of Montana for some warmer states that grow grapes, and then even further south to a warmer country for vanilla beans!



- ◇ Raisins are dried grapes, and California grows most of the grapes in the US. Washington and Oregon also grow grapes.
- ◇ Vanilla is made from vanilla beans, a crop of Mexico and Central America.
- ◇ Baking soda is mined from the earth.

Muffin Stuffin

Add

½ cup raisins

¼ teaspoon vanilla

1 teaspoon baking soda

Mix well, fill greased muffin tins

2/3 full. Bake at 400°

for 15-17 minutes.

Enjoy!

GLOSSARY

- ◇ Agriculture - the science or occupation of cultivating the soil, producing crops, and raising livestock
- ◇ Crush - to break into fine pieces by pressing, pounding, or grinding
- ◇ Diffused - poured or spread out : not concentrated
- ◇ Elevator - a building for elevating, storing, unloading, and sometimes grinding grain
- ◇ Evaporate - to remove some of the water from (as by heating)
- ◇ Extract - to get out by pressing, distilling, or by a chemical process
- ◇ Farmer - a person who cultivates land or crops or raises animals
- ◇ Harvest - the gathering of a crop, or the quantity of a crop gathered in a single season
- ◇ Impurities - matter mixed in with something else , usually not wanted in the mixture
- ◇ Ingredients - one of the substances that make up a mixture
- ◇ Matter - the substance of which a physical object is composed
- ◇ Particles - a very small quantity or piece
- ◇ Partnership - one associated in action with another

- ◇ Processing - the act of changing or preparing by special treatment
- ◇ Processing Plant - building or location where processing occurs
- ◇ Processor - a person or machine that processes
- ◇ Screens - a network of wire set in a frame and used for separating different-sized parts
- ◇ Steamed - to expose to the action of steam (as for softening or cooking)
- ◇ Sugar Crystals - fine particles of sugar which have been processed and evaporated

Teaching Materials List:

**Flour, sugar, oatmeal, eggs, milk, oil, vanilla, baking soda, and raisins.
(Quantities listed in book)**

2 mixing bowls

2 large spoons

Cup, tablespoon, and teaspoon measure

For more information on Montana Agriculture in the Classroom please visit our website at: <http://agr.mt.gov>. There you will find other hands on lesson plans for grades K-8 and activities aligned with educational standards for use in your classroom. You will also find teacher resources for learning more about Montana's agriculture commodities.

Education standards for this publication can be found at: <http://agr.mt.gov/>.



Measurement and Equivalents

US MEASUREMENT

$\frac{1}{8}$ teaspoon or less = a pinch

$\frac{1}{16}$ teaspoon = a dash

1 tablespoon (tbsp) = 3 teaspoon (tsp)

$\frac{1}{8}$ cup = 2 tablespoons

$\frac{1}{6}$ cup = 2 tablespoons + 2 teaspoons

$\frac{1}{4}$ cup = 4 tablespoons

$\frac{1}{3}$ cup = 5 tablespoons + 1 teaspoon

$\frac{3}{8}$ cup = 6 tablespoons

$\frac{1}{2}$ cup = 8 tablespoons

$\frac{3}{4}$ cup = 12 tablespoons

1 cup = 16 tablespoons

Measurement and Equivalents

8 fluid ounces (fl oz) = 1 cup

1 pint (pt) = 2 cups

1 quart (qt) = 2 pints

4 cups = 1 quart

1 gallon (gal) = 4 quarts

1 peck = 2 gallons

4 pecks = 1 bushel

1 bushel = 8 gallons

WEIGHTS

16 drams = 1 ounce (oz)

16 ounces = 1 pound (lb)

100 pounds = hundredweight (cwt)

20 cwt = 1 ton

2000 pounds = 1 ton

PLACE YOUR
PICTURE, OR A
MIRROR HERE!

Knows

Who

Grows

Muffin



Stuffin!

